

a dwarf in comparison with those seen by Mr. Munro and Mr. Quin. Doubtless the broken-down and pulverised corallines fill up many a crack in the reef's limestone. Should Mr. Munro be desirous of seeing some of his old West Indian corallines, I shall be glad to show him some microscopical results of work upon them.

P. MARTIN DUNCAN

Geological Society, May 1

### History of Magnetism

A PARAGRAPH in the article on "The Early History of Magnetism," in your last number, contains a passage which requires, I think, a note of explanation. The writer says: "A Latin letter ascribed to Peter Adsiger, 1269, preserved among the manuscripts of the University of Leyden, contains the following remark on the declination of the needle . . ." Now Humboldt, on the authority of Libri, denies the existence of the passage in the Leyden MSS., affirming that it is only an interpolation in a Paris copy. But what is of more importance, he also states that the title of the letter is "Epistola Pëtri P. de Maricourt ad Sigernum de Foucoucourt." E. Walker, in his well-known essay on Magnetism, refers to Cavallo as quoting the supposed letter of Adsiger.

S. J. PERRY

### Meteorological Society

WHILE thanking you for your friendly notice of the Annual Report of this Society, I trust you will allow me to state that we have not made "the mistake in science regarding the height of the thermometers above the ground," as very naturally imagined by you from the matter not having been mentioned. The fact is, we have been unusually strict on that point; our thermometers are all 4 feet (within, perhaps, 2 in. + or -), and as the uniformity was so strict, it was considered useless to repeat the statement for each station, and so, finally, it escaped mention altogether in the printed abstract. Of course the question (Report, p. 52), "What is the height of the bulbs above grass?" is duly answered on the MS. inspection forms deposited in the library of the Society.

May I, in conclusion, express the hope that the example which we have set by publishing the lithograph ground-plans, and which you so highly approve, may be generally followed both in this country and abroad?

G. J. SYMONS

Meteorological Society, 30, Great George Street,  
Westminster, S.W., April 28

### Destruction of Flowers by Birds

THE enclosed blossoms of the common "wild" cherry (*Prunus avium*, L.) have been mutilated in a precisely similar manner with those of the blackthorn noticed about a year ago in NATURE (vol. xii. p. 26), the petals and stamens still adhering to the separated limb of the calyx, which has been cut through at the exact level of the ovary, which has perhaps been the object of attack. Orchard trees in the neighbourhood from the same stock have also suffered to a serious extent, but the wall-cherries (*P. cerasus*, L.), which are later in flowering, have hitherto been untouched.

R. A. PRYOR

Hatfield, May 2

### OUR ASTRONOMICAL COLUMN

THE NEBULA IN ORION.—M. Tisserand, Director of the Observatory at Toulouse, commenced on Feb. 17 of the present year, a close examination of the small stars in the vicinity of the trapezium in the great nebula of Orion, with the Foucault telescope of 0<sup>m</sup>.80 aperture, which had been completely mounted at the beginning of the same month. To facilitate the study of this region, which it is intended shall form part of the work with this fine instrument, a chart was prepared on a large scale containing the 155 stars, the positions of which relatively to  $\theta^1$  Orionis, were determined by M. O. Struve (*Observations de la Grande Nebuleuse d'Orion* in the St. Petersburg Memoirs, vol. v.); of these 155 stars it may be mentioned that 150 occur in Sir John Herschel's list in the volume of observations made at the Cape of Good Hope. Especial attention was directed at Toulouse during the few weeks that the nebula could be observed in the last

season, to the stars which M. O. Struve had indicated as variable. The star  $\Pi$  ( $\Delta\alpha \dots - 7^{\text{h}} 3$ ,  $\Delta\delta \dots - 27^{\text{m}} 6$ ) which is not in Herschel's catalogue, was noted on Feb. 17 and 21 at the extreme limit of visibility: on following days, when the sky was more transparent, it could not be discerned; at maximum according to Struve this star is of the twelfth magnitude, the smallest star which can be distinctly seen in the Pulkowa refractor being considered 13<sup>5</sup>—a very different scale of magnitude, it will be remarked, from that of Bessel; No. 78 ( $\Delta\alpha \dots + 34^{\text{m}} 5$ ,  $\Delta\delta \dots + 9^{\text{m}} 7$ ), varying, according to Struve, from 12<sup>5</sup> to invisibility, was not discerned; No. 75 ( $\Delta\alpha \dots + 21^{\text{m}} 3$ ,  $\Delta\delta \dots + 39^{\text{m}} 2$ ) was 14.15 on March 14; Tisserand found No. V. of the Pulkowa list ( $\Delta\alpha \dots + 378^{\text{m}} 3$ ,  $\Delta\delta \dots + 66^{\text{m}} 3$ ) extremely faint on Feb. 24, and quite invisible subsequently, whence he concludes this star to be also variable, and that its non-insertion by Herschel may have arisen from its being at a minimum at the epoch of his observations.

Thirty-two stars have been remarked at Toulouse, which are not in the Pulkowa catalogue; of these fifteen occur in Bond's catalogue, in vol. v. of "Annals of the Harvard Observatory"; the remaining seventeen which have not, as it appears, been previously observed, are generally very faint, the only notable exceptions being in the cases of two stars, which have the following estimated co-ordinates relative to  $\theta^1$ .

$\Delta\alpha \dots$	$\dots + 180^{\text{m}}$	$\dots$	$\Delta\delta \dots$	$\dots - 180^{\text{m}}$
"	$\dots - 110^{\text{m}}$	"	"	$\dots - 480^{\text{m}}$

The first star was 13 (an object termed *très belle* with the Toulouse instrument) on February 17, but had become extremely faint on March 14 and 26. The second star is estimated 13, almost as bright as its neighbour, No. 55 of Struve's catalogue. M. Tisserand states that he has not been able to recognise all the stars in Bond's catalogue, more particularly in the neighbourhood of the trapezium.

The numerous variable stars, which we have now reason to suppose exist in the nebula of Orion, certainly form one of the most significant and interesting features in the history of that grand object.

It may be added here that M. Tisserand has also employed the powerful optical means now at his command, upon observations of the satellites of Uranus.

NEW MINOR PLANETS.—Still another small planet is announced during the last week. It was found by M. Perrotin at Toulouse on April 26, in R.A. 14h. 11m. 48s, N.P.D. 96° 24'; twelfth magnitude.

The planet detected by Prof. Watson at Ann Arbor on April 19 is called No. 161 in the *Astronomische Nachrichten*. These numbers, however, are now in much confusion, and names for those which are observed a sufficient length of time to allow of the determination of elements have an obvious advantage over the system of leaving these planets to be distinguished by a number only. As regards numbers there is even doubt as far back as No. 149, which has not yet been shown to be distinct from Frigga (No. 77).

BIELA'S COMET AND THE NOVEMBER METEOR-STREAM.

—If we take for the orbit of the November meteor-stream the elements calculated by Prof. J. C. Adams, and communicated to the Royal Astronomical Society in April, 1867, and for Biela's comet a mean of the sets of elements for the two nuclei in 1866, given by Clausen in "Melanges Mathématiques et Astronomiques," &c., t. iii., of the Imperial Academy of St. Petersburg, we find for the least distance between the tracks of the comet and the meteors, 0.054, the mean distance of the earth from the sun being taken as unity. This nearest point of approach is in heliocentric longitude 61° 30' (equinox of 1866), where we have—

	Comet.	Meteors.
Heliocentric latitude	$\dots 0^{\circ} 58' \text{ N.}$	$\dots 2^{\circ} 57' \text{ N.}$
True anomaly	$\dots 311^{\circ} 44'$	$\dots 356^{\circ} 24'$
Radius-vector	$\dots 1.0266$	$\dots 0.9865$

The approximation of the orbit of Biela's comet to that of the November meteor-stream, and consequently to that of Tempel's comet, 1866 (I.), was first pointed out by Prof. Bruhns, of Leipsic, in *Astron. Nach.*, No. 1681, but the heliocentrics there employed were deduced from the geocentric places of Santini's rough ephemeris.

PROF. FLOWER'S HUNTERIAN LECTURES  
ON THE RELATION OF EXTINCT TO EXIST-  
ING MAMMALIA<sup>1</sup>

IX.

THE disputed zoological position of the Lemurs, and the great importance which has been attached to them by some zoologists, who regard them as the direct transition between the lower and higher mammals, and as survivors of a large group now almost extinct, through which the higher Primates must have passed in the progress of their development, give great interest to the consideration of their ancient history.

Until very recently fossil Lemurs were quite unknown, at all events the affinities of certain remains provisionally assigned to the group were much questioned, but within the last few years the existence of Lemuroid animals in Europe during the early Tertiary period has been perfectly established, and remains of a large number of animals attributed, though with less certainty, to the order, have been found in beds of corresponding age in North America.

In 1872, a nearly complete skull of an animal somewhat allied to the modern African Pottos and Galagos, though of a more generalised character both of cranial conformation and dentition, was described by M. Delfortrie, under the name of *Palæoimur betillei*. It was found in phosphatic deposits, probably of early Miocene age, in the department of Lot. It was soon afterwards discovered that certain more or less fragmentary specimens which had been long before described, and had been generally though doubtfully referred to the *Ungulata*, were really nothing more than animals of the same group, and probably even of the same species. These are *Adapis parisiensis*, Cuvier, from the Paris gypsums, *Aphelotherium duvernoyi*, Gervais, and *Cænopithecus lemuroides*, Rutimeyer. The recognition of these animals as Lemuroids shows how little reliance can be placed upon the characters of the molar teeth alone in judging of affinities, and should also lead to the re-examination of some of the smaller mammals of our own Tertiaries, such as *Miolophus*, as it is not improbable that Lemurs may be found among them. The same deposits in which M. Delfortrie's specimen was found, have since yielded two other skulls, one of smaller and the other of larger size, named by M. Filhol, *Necrolemur antiquus* and *Adapis magnus* respectively. It should, however, be mentioned that M. Filhol only admits the first to be a true Lemur, and considers the genus *Adapis* as the type of a hitherto unknown group of mammals, intermediate between the Lemurs and Pachyderms, to which he gives the name of *Pachylemur*.

Of the supposed low and generalised forms of Primates from the Tertiaries of North America, the existence of which was announced almost simultaneously by Professors Marsh and Cope in 1872, it is difficult to speak with certainty at present, as the descriptions which have reached this country are not very detailed. As many as fifteen genera have already been named. They are nearly all from the Eocene formations, two only having been found in the lower Miocene.

The remains of no true monkeys have hitherto been discovered in the Eocene, but several species have been found both in Miocene and Pliocene formations in

Europe. The most abundant and best preserved are those from Greece, *Mesopithecus pentelici*, allied to the existing genus *Semnopithecus*, though with shorter and stouter limbs. Others have been found in the Siwalik Hills of India allied to the same form, and in France, the South of Germany, and Italy, related to the Macaques and to the Gibbons. The most interesting species is one known by the lower jaw only, from a Miocene bed at St. Gaudens, in France, described by Lartet under the name of *Dryopithecus fontani*. Its affinities have given rise to some discussion, but as far as can be decided from the evidence before us, it appears intermediate between the chimpanzee and gorilla, and of the size of the former. Considering how nearly the Miocene fauna of Europe resembles in its general features the actual fauna of Africa, it is not surprising that an ape of the genus *Troglodytes* should have formed part of it. No remains of monkeys allied to the existing American forms have been found in the Old World, and conversely, all those discovered by Lund in the Brazilian caverns belong to the families now inhabiting the same part of the world. No monkeys have yet been found in the alluvial deposits of the plains, which are so rich in the great Edentates, nor in fact have they been met with in any older South American Tertiaries. The ancient history of the group, as revealed to us by palæontology, is therefore extremely incomplete. Further researches into the fauna of the North American Eocenes may throw some light upon it.

No actual remains of man have been met with which can be said with certainty to be older than the Pleistocene period, though it is asserted that his existence upon the earth in the Pliocene and even Miocene epoch is proved by works of art found in deposits of those ages. These, however, are questions to be decided by the antiquary and the geologist, and are beyond the scope of the anatomist. The oldest known remains of man from European caves (with perhaps the exception of the celebrated skeleton from the Neanderthal, the age of which is doubtful) do not differ more from modern Europeans than do several of the lowest modern races. In other words, no proof of the existence in former times of a race of men inferior in general organisation to the Australians, and forming any nearer approach to the lower animals, has yet been discovered.

In reviewing our present knowledge of the palæontology of the Mammalia we see immense progress of late years, giving hopes for the future. Here and there we have tolerably complete histories of gradual modification of forms with advancing time, and adapted to the exigencies of changing circumstances, as among the *Ungulata* and the *Carnivora*; and we have many instances of extinct forms filling the gaps between those now existing. But still there are great gaps or rather gulfs between most of the large groups or orders, without at present any trace of connecting links, or anything to indicate how they were once filled up, as must have been the case if they have all been gradually evolved from a common origin. We have very much to learn before we can speak with any confidence upon the manner in which all the diversities of form we see around us have been brought about, or attempt to construct pedigrees or phylogenies, except in the most provisional and tentative manner.

INTERNATIONAL METEOROLOGY

THE Permanent Committee of the Vienna Meteorological Congress has just held its third meeting in London, which lasted from the 18th to the 22nd April inclusive. The members present were Prof. Buys Ballot (Holland), president, Professors Bruhns (Germany), Cantoni (Italy), Mohn (Norway), Wild (Russia), and Mr. Scott. Prof. Jelinek (Austria) was unfortunately absent owing to ill-health.

<sup>1</sup> Abstract of a course of lectures delivered at the Royal College of Surgeons "On the Relation of Extinct to Existing Mammalia, with Special Reference to the Derivative Hypothesis," in conclusion of the course of 1873. (See Reports in NATURE for that year.) Continued from vol. xiii. p. 514.